

WHAT IS CLAIMED IS:

- 1 1. A method of manufacturing a module, the method comprising:  
2 providing a device that includes a connection area extending over a top surface of the  
3 device;  
4 applying a casting compound over the top surface of the device so that the connection  
5 area protrudes through the casting compound; and  
6 after applying a casting compound, electrically coupling the connection area to a terminal  
7 of a second apparatus.
- 1 2. The method of claim 1 wherein the second apparatus comprises a printed circuit board,  
2 the method further comprising, after applying the casting compound, mounting the module to the  
3 printed circuit board.
- 1 3. The method of claim 1 wherein the second apparatus comprises a lead frame, the method  
2 further comprising, after forming the casting compound, attaching the module to the lead frame.
- 1 4. The method of claim 1 wherein electrically coupling the connection area comprises  
2 soldering the connection area to the terminal.
- 1 5. The method of claim 1 wherein the connection area is formed over a compliant 3D  
2 structure.
- 1 6. The method of claim 1 wherein the connection area comprises at least one of a solder  
2 ball, a  $\mu$  spring or a soft bump.

- 1 7. The method of claim 1 wherein the device comprises a semiconductor wafer.
- 1 8. The method of claim 7 and further comprising separating the wafer into a plurality of  
2 individual chips, wherein the casting compound is applied to the wafer before the separating.
- 1 9. The method of claim 8 wherein separation corridors between the chips on the wafer are  
2 exposed before the separating.
- 1 10. The method of claim 9 wherein the separation corridors are exposed by a  
2 photolithographic process.
- 1 11. The method of claim 9 wherein the separation corridors are exposed with use of a laser  
2 beam.
- 1 12. The method of claim 8 wherein the wafer is cooled to a temperature at which the casting  
2 compound is adequately brittle before separating the wafer into a plurality of individual chips.
- 1 13. The method of claim 1 wherein the casting compound is applied uniformly by spraying,  
2 dispensing or printing.
- 1 14. The method of claim 1 wherein the casting compound has thermal and mechanical  
2 properties comparable to those of silicon.
- 1 15. The method of claim 14 wherein the casting compound comprises a silicon-based  
2 material.

- 1 16. The method of claim 14 wherein the casting compound comprises a thermoplastic  
2 material.
- 1 17. The method of claim 14 wherein the casting compound comprises an epoxy resin.
- 1 18. The method of claim 1 and further comprising, after applying a casting compound,  
2 reducing a thickness of the casting compound so that the connection area protrudes through the  
3 casting compound.
- 1 19. The method of claim 18 wherein the thickness of the casting compound is reduced by  
2 thermal removal.
- 1 20. The method of claim 18 wherein the thickness of the casting compound is reduced by  
2 etching.

1 21. A method for improving the mechanical properties of a BOC module arrangement in  
2 which chips have 3D structures which are mechanically and electrically connected by means of  
3 solder connections to terminal contacts on a printed circuit board or leadframe, the method  
4 characterized in that a casting compound is provided for the chips in such a way that tips of the  
5 3D structures protrude from the compound.

1 22. The method of claim 21 wherein the 3D structures comprise a structure selected from the  
2 group consisting of solder balls,  $\mu$  springs and soft bumps.

1 23. The method of claim 21 wherein the 3D structures comprise compliant 3D structures.

1 24. The method of claim 21 wherein the chips comprise a plurality of chips on a  
2 semiconductor wafer.

1 25. The method of claim 21 wherein the chips comprise individual semiconductor dies.